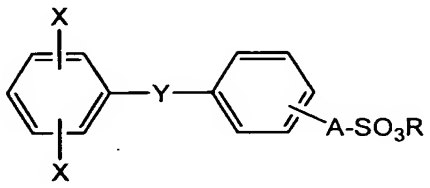
ABSTRACT

Described herein is a production method of sulfonated polyarylene that is safe and enables easy control of the amount and position of sulfonic groups introduced in the polymer. The sulfonated polyarylene is also disclosed. The invention further provides a polyarylene and an aromatic sulfonate derivative that are suitably employed in the above production method. Also provided are a macromolecular solid electrolyte that comprises the sulfonated polyarylene, and a proton conductive membrane.

The aromatic sulfonate derivative has the following formula (1):



...(1)

wherein X is a halogen atom other than fluorine, a $-OSO_3CH_3$ group or a $-OSO_3CF_3$ group; Y is a divalent organic group; A is $-(CH_2)_m-$ or $-(CF_2)_m-$ (wherein m is an integer of 1 to 10); and R is a C_{4-20} hydrocarbon group.

The production method of sulfonated polyarylene comprises coupling polymerization of an aromatic compound that includes at least the aromatic sulfonate derivative of the formula (1) and hydrolysis of the resultant polyarylene.